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REMARKS

Entry of this Amendment is proper under 37 CFR §1.116, since no new claims or issues are presented and the Examiner has to clarify at least the rejection under 35 USC §112, first paragraph, before issues can be finally presented by Applicants for review by the Board of Appeals.

Claims 1, 6-14 and 19-26, are all the claims presently pending in the application.

It is noted that the claims have been amended solely to more particularly point out Applicants' invention for the Examiner, and not for distinguishing over the prior art, narrowing the claim in view of the prior art, or for statutory requirements directed to patentability.

It is further noted that, notwithstanding any claim amendments made herein, Applicants' intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 1,6-14, and 19-26 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to meet the written description requirement.

Claims 1, 6, 7, 9-11, 14, 19, 20, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art, (page 1-4, line 7).

Claims 8, 12, 13, and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art in view of Strongin (U.S. Patent No. 6,304,935) (hereinafter "Strongin").

Claims 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art in view of Miyamoto et al. (U.S. Patent No. 6,097,364) (hereinafter "Miyamoto").

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art in view of Kikuchi (U.S. Patent No. 5,576,735) (hereinafter "Kikuchi").

These rejections are respectfully traversed in the discussion below.

I. THE CLAIMED INVENTION

Applicant's invention, as defined for example in independent claim 1 (and substantially similarly in independent claim 9 and 14) is directed to a system (and method) for displaying information including an extended bus bridge, a graphics adaptor coupled to the extended bus bridge, and a monitor coupled to the graphics adaptor to display the information. A serial link interconnects the portions of the extended bus bridge.

The extended bus bridge includes a first portion and a second portion, The first portion includes a first local bus based on a first protocol and a first interface to convert a serial signal into the first protocol. The second portion includes a second local bus based on the first protocol and a second interface to convert the first protocol into the serial signal. The first protocol is defined by a standard of a local internal bus of a computer.

A feature of the present invention is that the graphics adaptor is localized to the monitor and the graphics adaptor and the monitor form a display unit (e.g. see page 3, lines 9-12; page 5, lines 7-10, page 6, lines 8-9; and page 10, lines 8-9).

An exemplary configuration of the system (and method) for displaying information including an extended bus bridge where the graphics adaptor is localized within the monitor, is shown in Figs. 3-4 of the application.

With such novel and unique features in the claimed combination, a system for displaying information with a connection between a PC and a monitor can avoid the problems of having a bottleneck in the system caused by having to carry all of the bandwidth of the high resolution image in a connecting cable.

The conventional systems, such as those discussed below and in the Related Art section of the present application, do not have such a structure, and fail to provide for such an operation.

Indeed, such features are clearly not taught or suggested by the cited references.

II. THE 35 U.S.C. §112, FIRST PARAGRAPH, REJECTION

The Examiner considers that the previously-added wording in the independent claims is not supported in the specification, as originally filed. Applicants respectfully disagree.

The Examiner correctly points to part of the relevant description on page 8. However, the entire description is:

"*The invention utilizes an extended bus bridge 305. In Figure 3, the bus bridge is shown preferably as a PCI bus bridge 305 having a bus portion 305A on the CPU side and a bus portion 305B on the monitor side. The invention is not limited to the PCI bus bridge and indeed other bus bridges may be employed. For example, as discussed in further detail below, in the second embodiment of the invention, as Accelerated Graphics Port (AGP) bus bridge (e.g., having a bandwidth of 256-512 Mbytes/Sec.) may be provided. Additionally, a network bus bridge could be used.*

In Figure 3, B0 is the primary side interface of the chip, and it interfaces to the primary PCI bus (bus 0) as a regular PCI-PCI bridge. All PCI traffic addressed to B0 is serialized across a high-speed serial link using, for example, a Gigabit Ethernet as its physical layer.

On the remote side of the serial cable (e.g., up to 30 meters away), interface B1 converts the serial stream back to PCI traffic and relays it to the graphics card (e.g., graphics adaptor 304) now connected to the secondary PCI (bus 1) as shown."

Applicants submit that one of ordinary skill in the art would understand from the above description that a key feature of the present invention is that a computer internal local bus (e.g., PCI bus or AGP bus) is serialized on the CPU side, transmitted across the interconnecting link, and converted back into a local bus on the remote side.

Therefore, since the claim language is clearly supported by this description recited above, Applicants submit that there is indeed written description in the originally-filed specification.

In view of the above clarification, Applicants request that the Examiner reconsider and withdraw this rejection.

III. THE PRIOR ART REJECTIONS

The Examiner alleges that the Applicants' Admitted Prior Art renders obvious the present invention as defined by claims 1, 6, 7, 9-11, 14, 19, 20, 22, and 23, relying on *In Re*

Japikse and *Nerwin v. Erlichman.*

The Examiner further alleges that *In Re Japikse*: "*... recognizes that the relocation of well known element is normally not desired toward patentable subject matter.*" The Examiner additionally alleges that *Nerwin v. Erlichman*: "*... recognizes that the separation of well known element is normally not desired toward patentable subject matter and use the serial link 102 in the AAPA system to connect two portions of the bus together to transfer display data for the system.*"

First, relative to Japikse, it is noted that even MPEP 2144.04 VI C., wherein this case is discussed, does not at all characterize Japikse in the wording of the Examiner. That is, the MPEP wording is: "*Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device*" (Emphasis by Applicants). The Court's actual wording is: "*As to that limitation it was held that there would be no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified. We find no error in the holding as to claim 3.*"

In contrast, the present invention does not satisfy the basic rationale upon which the holding of Japikse is based. That is, in the present invention, the operation of several devices in the system is modified. First, the graphics adaptor 104 is no longer in the PC box 110 (reference Figure 1 of present application). Second, the monitor 101 includes the graphics adaptor 104, previously integrated in the PC box 110. Third, the analog/digital cable 102 interconnecting the PC box 110 and monitor 101 is replaced with a high speed serial cable. Fourth, the present invention includes an extended bus bridge that is not present in Applicants' Admitted Prior Art shown in Figure 1.

This extended bus bridge includes, in the PC box 310, 410 (see Figures 3 and 4) a bus 305, 405 considered in the art as being localized inside a computer (e.g., a PCI or AGP bus), plus a chip 305A, 405A to convert the localized bus into a serial signal. In the monitor, the extended bus bridge includes again a bus (e.g., PCI Bus 1, AGP Bus 1) considered in the art to be localized to a computer (*not* localized to a *monitor*, as in the present invention), plus a chip to convert the serial link signal back into the "computer localized bus" protocol to

interface with the graphics adapter 304,404 in the monitor.

Thus, it would seem that the Examiner mistakenly considers that, because the present invention includes a monitor 301, 401 driven by a "CPU + Host PCI Bridge" 303, 403, the "operation of the device would not be modified" (to use the wording of Japikse). As explained above, in reality, the present invention modifies the PC box 110, the interconnecting cable 102, and the monitor 101 of the prior art shown in Figure 1.

Importantly, to achieve these modifications, the present inventors have had to import a bus considered in the art as being localized in a PC box 110 into a monitor 101. The Examiner cannot simply ignore this conventional practice in the art.

Second, relative to Nerwin, the Examiner's point remains unclear, since this USPTO Board of Appeals case does not seem to be discussed in the MPEP. The relevant wording on page 179 in the USPQ would seem to be: "*The mere fact that a given structure is integral does not preclude its consisting of various elements.... We are of the opinion, however, that while a given structure may in one sense be considered a single element, in another sense it may be so formed as to consist of several elements depending upon the functions to be performed by such elements.*"

These words fall far short of the Examiner's characterization that: "*separation of well known element is normally not desired toward patentable subject matter and use the serial link 102 in the AAPA system to connect two portions of the bus together to transfer display data for the system.*"

Clearly, the present invention, by separating the graphics adapter 104 from the PC box 110 and placing it adjacent to the monitor 101 has overcome a data bandwidth bottleneck in the conventional system shown in Figure 1, while simultaneously addressing the problem of electromagnetic radiation. The wording in Nerwin is not at all applicable without some type of reasonable clarification by the Examiner.

Thus, the rejection currently of record clearly fails to meet the initial burden of a *prima facie* rejection under 35 USC §103(a). Clearly, there is no teaching or suggestion in Applicants' Admitted Prior Art shown in Figure 1 of an "extended bus bridge", or of a display device that incorporates the graphics adapter, or of a serial bus that interconnects the extended bus bridge portions.

Hence, turning to the clear language of independent claim 1 (and similarly that of independent claims 9 and 14), there is no suggestion of: "an extended bus bridge, said extended bus bridge including a first portion and a second portion, said first portion comprising a first local bus based on a first protocol and a first interface to convert a serial signal into said first protocol, said second portion comprising a second local bus based on said first protocol and a second interface to convert said first protocol into said serial signal, said first protocol defined by a standard of a local internal bus of a computer; a graphics adaptor coupled to said extended bus bridge at the first portion of said extended bridge; a central processing unit (CPU) coupled to said second portion of said extended bridge; a monitor coupled to said graphics adaptor to display the information, such that said graphics adaptor is localized to said monitor and said graphics adaptor and said monitor comprise a display unit; and a serial link for coupling together said first and second portions of said extended bus bridge".

Applicants submit, therefore, that claims 1, 6, 7, 9-11, 14, 19, 20, 22, 23 are clearly patentable over Applicants' Admitted Prior Art.

The Examiner relies on Strongin to teach: "... *a portion of a AGP bus bridge 104 coupled to the graphic processor 202*" and on Miyamoto to teach: "... *a display control apparatus in which only the information that changes is transferred to the display unit.*" However, neither Strongin nor Miyamoto overcomes the basic deficiency identified above.

Relative to rejections based on combining/modifying AAPA with Strongin, Miyamoto, or Kikuchi, Applicants again submit that the rejection currently of record fails to meet the initial burden.

The rejection of record demonstrates very clearly the deficiency of patentability evaluations based on words taken out of context. The Examiner is understood as considering that the terms "AGP" and "bottleneck" together somehow renders obvious all inventions involving "AGP" and "bottleneck". However, Applicants submit that such is not at all the case and, indeed, Strongin is clear evidence that "a bottleneck" can be solved in entirely different ways, particularly if there are different bottlenecks.

That is, Strongin solves the bottleneck problem it has defined (e.g., a different bottleneck problem from that addressed by the present invention) by inserting additional

components 302, 304 into the northbridge structure. The components eliminate the bottleneck identified in Strongin as one being inherent in the AGP interface standard. One of the added components is a buffer 304 and the other 302 mimics the graphics controller. This technique allows the CPU to continuously send data to the newly-added buffer by "tricking" the CPU to consider that data is constantly being requested by the graphics controller.

In contrast, the "bottleneck"addressed by the present invention would be more closely correlated in the configuration shown in Figure 1 of Strongin to the data bottleneck between the AGP-Enabled Graphics Controller 100 and the display device 110. This bottleneck concerns the problem due to ever-increasing display size in which the number of display pixels creates such a demand for data that the conventional display monitor cable has a problem to accommodate the ever-increasing amount. This data bottleneck is entirely different from the data bottleneck discussed in Strongin and is not even discussed in Strongin. Thus, Strongin addresses an entirely different problem from that of the present invention and the solution in Strongin is entirely different from that offered by the present invention.

The Examiner cannot simply ignore the engineering reality of the architecture in Strongin and the problem and solution discussed therein. The Examiner simply plucks words out of context and attempts to justify that these words taken out of context somehow renders obvious all inventions having these terms.

Such circuit revision would clearly violate the guideline of MPEP 2143.01: "*The proposed modification cannot change the principle of operation of a reference.*" As previously explained on the record, the Examiner's urged combination would change the principle of operation of both the Applicants' Admitted Prior Art and Strongin.

Therefore, the rejection currently of record clearly fails to meet the initial burden of a *prima facie* rejection under 35 USC §103(a) since the combination would be improper, and claims 8, 12, 13, and 21 are clearly patentable over Applicants' Admitted Prior Art and Strongin.

Relative to the rejection for claims 24 and 25, the rejection currently of record again extracts words out of context and attempts to insert them into another environment without recognizing the different problems being addresses and the different circuits involved. More specifically, as best understood, the Examiner relies upon the partial write control unit 10,

described at lines 9-16 of column 5, as evidence that any mechanism involving only updated image information is, therefore, rendered obvious.

That is, the motivation to modify AAPA is that one would achieve the benefit of having made the modification. Applicants point out that this circular technique renders everything obvious, since it is always possible to assert a motivation exists by reason of being able to achieve the benefit of having made the modification.

Moreover, there is another problems with this motivation using Miyamoto. It fails to achieve the plain meaning of the claims (e.g., "... said serial link is for carrying only information that changes"). That is, the clear purpose of partial write control unit 10 in Miyamoto, as described at line 10, is "... to detect only updated image data ...", an entirely different concept from that of the plain meaning of the claims. The purpose of the partial write control unit is so that "... the updated portion can be preferentially drawn ...."

Therefore, Applicants submit that claims 24 and 25 are clearly patentable in view of Miyamoto.

Relative to the rejection for claim 26, Applicants submit again that the Examiner merely makes a conclusory statement that the motivation to modify AAPA would be to obtain the benefit of having made the modification. Clearly, there is no suggestion in the AAPA to make a parallel connection between graphics adaptor 104 and monitor 101, and making such change would clearly change the principle of operation of AAPA.

Finally, it is pointed out that MPEP §2141.02 clearly states the following very basic evaluation guideline: "*In determining the differences between the prior art and the claims, the question under 35 U.S.C.103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious*" (emphasis in MPEP itself).

This guideline reflects the well established concept in patentability evaluation that a new invention may "merely" be a new and different combination of known elements.

It is also pointed out that MPEP §2143.01 clearly states a second guideline: "*The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination*" (emphasis in MPEP itself).

Along these lines, Judge Rader wrote in the recent Federal Circuit Court of Appeals holding in *Ruiz v. A.B. Chance Co.*, Federal Cir., No. 03-1333, January 29, 2004:

> *"In making the assessment of differences, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. Envtl. Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result - often the very definition of invention."*

Although the holding in that case left undisturbed, under the "clear error" standard of review, the conclusion of the District Court that the prior art references were properly combinable, it specifically explained that it declined to reverse this conclusion because "... the two references address precisely the same problem ... " (emphasis by Applicants)

This aspect of the *Ruiz* holding, in which precisely the same problem is being addressed by both references, is not present in AAPA versus the Strongin, Miyamoto, and/or Kikuchi references.

That is, the problem addressed in the AAPA by the present invention is the bottleneck in the analog/digital video cable 102 interconnecting the graphics adaptor 104, as located in the PC box 110, and the monitor 101. To solve this problem, the present invention eliminates the cable 102 by relocating the graphics adapter 104 from the PC box 110 to the display unit 320 containing the monitor 301 and interconnects the CPU with the now-remotely-located graphics adapter, by way of an extended bridge.

The problem addressed in Strongin is a bottleneck inherent in the AGP standard. The solution in Strongin is to insert additional components into the AGP bridge to provide an additional data buffer between the CPU and the AGP-Enabled Graphics Controller.

The problem addressed in Miyamoto is the correction of errors in the pseudo halftone process. To solve this problem, a partial write control unit detects only updated image data,

which is stored in a special memory so that it can be specially prepared for display.

The problem addressed in Kikuchi is improvement of a coordinate detecting apparatus by reducing the number of interconnecting cables and the frequency of information.

Applicants submit that the clearly different problems being addressed by these references are clear evidence of exactly the "roadmap" approach against which Judge Rader warns in the above-recite *Ruiz*.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1, 6-14 and 19-26, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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CERTIFICATION OF TRANSMISSION

I certify that I transmitted via facsimile to (703) 872-9306 this Amendment under 37 CFR §1.116 to Examiner D. Dinh on March 9, 2004.

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